

**Docket No. SA-532**

**Exhibit No. 6-G**

**NATIONAL TRANSPORTATION SAFETY BOARD**

**Washington, D.C.**

Attachment 6

Airbus Document: “Getting to Grips with Cabin Safety”  
Chapter 6: Ditching

(27 Pages)



## 6. DITCHING

### 6.1. INTRODUCTION

The definition of ditching is *"A deliberate emergency landing on water, were the aircraft touches down under control"*. However, in commercial aviation this is a rare occurrence.

A ditching, when executed correctly, is survivable. During a planned ditching the cabin crew have notice, and therefore, sufficient time to prepare the cabin, or to advise passengers to put on their life vests.

During cabin crew training, the emphasis is placed mainly on "ditching" in a large body of water as many skills are required, particularly the principles of survival, until rescue arrives.

However, an NTSB study of Air Carrier water contact accidents indicates that these accidents are usually inadvertent, with no time to prepare. Most accidents occur during the takeoff and landing phases of flight, and usually within proximity of the airport. Many water contact accidents occur during the hours of darkness.

There is usually a lot of damage to the aircraft. In some cases, the cabin has flooded quickly, and the aircraft has sunk within minutes.

The actions and response of the cabin crew, during a "ditching" or inadvertent water landing, will have a direct effect on the chances of survival. Wet drills and ditching exercises, that form part of the cabin crew's initial training and further emergency training, provide the cabin crew with invaluable information, that helps them to react effectively, and improves their situational awareness skills in emergencies.

## 6.2. UNPLANNED DITCHING

Many “inadvertent water landings” (referred to as “Unplanned Ditching”) have been documented. Unlike a planned emergency, during unplanned ditching there has been no time for the cabin crew to prepare the passengers, for example advising “Brace” positions, or donning life vests.

An unplanned ditching occurred in 1989, on a night flight during the take-off roll. The aircraft drifted to the left, the take-off was aborted, and the aircraft overran the runway, and then dropped onto the wooden approach light pier. The aircraft broke into three pieces and came to rest in the water.

During take-off, the cabin crew knew that something was abnormal, and that the take-off was deteriorating. They immediately reacted by shouting the “Brace” commands to the passengers.

When the aircraft came to a complete stop, the crew assessed the outside conditions. They opened the exits, according to the outside conditions, and immediately gave the commands for the passengers to evacuate.

The flotation devices onboard this aircraft were seat cushions. The water depth was between 7-12 meters deep with a 1-knot current.

Due to the strong current it was difficult for some people to stay afloat. The crewmembers threw seat cushions to passengers who were in the water. Two of the passengers could not swim, two of the crewmembers linked their arms together to support these passengers, and prevent them from going under the water.

The crewmembers remained in control of the situation, and they instructed the passengers in the water to stay in groups and to help each other.

Approximately 20 passengers exited by the left wing, which was not in the water, and the ditching line was attached. These passengers held on to the ditching line, until they were rescued. Amongst the passengers on the wing was a woman with an 8-month old infant, and a 5-year-old child.

The NTSB commended the actions of the four cabin crewmembers, as they performed “in an outstanding manner”.

Amongst the total of 63 people onboard, there were two fatalities.

This just a brief synopsis of the accident, however, the actions of the cabin crewmembers resulted in making the accident survivable (NTSB/AAR-90/03).

### 6.3. SITUATIONAL AWARENESS

In any unprepared emergency the reaction of the cabin crewmembers will depend largely on their situational awareness skills.

When preparing for take-off and landing, the use of the "Silent Review" will heighten crewmembers' situational awareness skills, and prepare them for the unexpected. When departing or arriving to a destination that involves flying over water, some ditching information in to the "Silent Review" should be included. Think about the extra information that will need to be given to passengers, for example, the use of equipment:

- What commands should be used?
- What should be looked for, when assessing conditions?
- What would determine the exits, usable/unusable?
- What equipment should be used?
- How to use the slide raft?
- What equipment to take?
- How to manage passengers in the water?
- How to manage passengers in the raft?

During "Unplanned" ditching, like any unplanned emergency, anything can happen and anything is possible. Crewmembers may also have to contend with rising water, damaged equipment, communication problems, as well as evacuating children, elderly and handicapped.

No two incidents/accidents are the same. "Unplanned" ditching poses a formidable challenge to crewmembers.

The outcome will depend on many factors:

- Immediate actions of the cabin crewmembers
- The condition of the aircraft
- Ability to evacuate into slide/sliderafts.

The leadership of the cabin crew plays a very important role in any emergency, even more so, in the event of a ditching. Crewmembers will have to use their knowledge of equipment, survival procedures, and rescue techniques. Crewmembers need to be efficient and maintain control of the situation.

Time is of the essence in an emergency, in order to evacuate the aircraft and get people to safety as quickly as possible, without endangering lives. The level of danger to both passengers and cabin crew increases as time passes, and therefore stresses the urgency to evacuate the aircraft rapidly.

Landing on water can be divided into three phases:

- The impact phase
- The egress phase
- The survival phase.

#### 6.4. THE IMPACT PHASE

As stated in the accident synopsis, the crewmembers realized that the takeoff was deteriorating. They were aware that there was a problem, and commanded their passengers to "Brace".

As with any unplanned impact, one of the first actions crewmembers will need to take, is to shout the commands for the "Brace" position. This will reduce the amount of injury to the passengers, and give them a better chance of being able to evacuate the aircraft and survive. Remember, there may be more than one impact, everyone will need to remain in the "Brace" position until the aircraft finally comes to a complete stop.

If the cabin is flooding, or water is visible, start evacuating the aircraft immediately. Crewmembers should immediately don their life vests, and simultaneously shout commands to passengers to **"Release seatbelts", "Get Life vests", or "Seat cushions", "Come this way"**.

The flight crew may give the command to evacuate with instructions of which exits may be usable or unusable. **Listen for specific instructions from the flight crew.**

Not all crewmembers, in inadvertent water landings, were aware that they were in water until they assessed the outside conditions. It may be possible that only one part of the aircraft is in the water.

The cabin crew must communicate to establish the status of all the exits. Crewmembers must use whatever means available to communicate.

### **6.5. THE EGRESS PHASE**

When assessing the conditions before exiting the aircraft, it will be necessary to determine if the aircraft is floating, sinking, or if the water level is present at exits. This information will determine the actions that the cabin crew will take.

### **6.6. PASSENGER REACTION**

As with any type of unplanned emergency, particularly when there is a need to evacuate the aircraft rapidly, the expertise, instructions and the assertiveness of the crewmembers will have a direct impact on the outcome.

Passenger reaction may be somewhat different than in a ground evacuation, because other elements, such as water are involved, and the use of equipment, such as lifejackets, will be unfamiliar.

- It is possible that passengers may be injured, particularly if the aircraft has been subjected to severe structural damage
- The level of panic may be higher, particularly if water is present, or rising in the cabin
- Passengers may find it difficult to find life vests
- Passengers may have difficulty donning life vests.

### **6.7. AIRCRAFT SINKING RAPIDLY**

- Direct passengers out the nearest opening
- Instruct passengers to support themselves, by holding anything that will keep them afloat
- Find as much flotation equipment as time permits, distribute to passengers
- Leave the aircraft.

## 6.8. AIRCRAFT FLOATING

The level of the water will determine whether the exit is usable or not. Exits that are below water, or seeping water at the sides, are not considered usable.

Use all exits above the water line. If the level of water is at the doorsill, evacuate passengers directly on the slide/sliderafts, and leave the slide/slideraft attached to the floor of the aircraft.

If possible, avoid evacuating passengers directly into the water, although sometimes there may be no other option.

It is possible that aircraft fuel, hydraulic fluid and oil have contaminated the water, swallowing or being in contact with these fluids can cause temporary loss of hearing, vision and produce nausea. Boarding a raft from the water can be a difficult task, someone who is covered in fuel and oil will be slippery and difficult to grasp from the water.

Low water temperatures may also pose a threat of hypothermia. The symptoms of hypothermia may start within 10 minutes.

If the water is cold it may cause panic and shock. Shock can place severe strain on the body and lead to cardiac arrest.

Those who are non-swimmers are very susceptible to incapacitation and drowning.

Be prepared to shout instructions regarding how to board the slideraft. **"Shoes off", "Board on hands and knees," "Go to the end", and "Sit down"**.

## 6.9. OVERWING EXITS

Overwing exits are secondary exits during a ditching, because they are not equipped with slide/sliderafts.

If the overwing exits are usable, attach the lifeline, when installed, to the hook on the wing.

Instruct passengers to step on to the wing, inflate their lifejackets, and hold on to the lifeline. If circumstances permit, keep the passengers together on the wing until rescue arrives.

## 6.10. LIFEVESTS

Donning a life vest takes time, thought, and dexterity. Imagine what it would be like to have to use a life vest for the first time under these circumstances. The passenger must use the life vest, as follows:

- Locate it
- Retrieve it from storage
- Unpack it from the plastic pouch
- Don it
- Fasten or tie it
- Inflate it.

Several accident reports have reflected the difficulties that passengers have experienced in locating, and retrieving their life vests. One report states that *“passengers had been told 5 to 7 minutes before impact of a possible ditching, some passengers had to get on their hands and knees to retrieve the life vests from the stowage and put them on.”*

*Another report states “rising water in the cabin compounded the problems of locating and removing the vests from the under seat compartments”. Crewmembers and able-bodied passengers had to swim under water to retrieve as many life vests as possible and distribute them to passengers that are already outside the aircraft.* Life vests may also be dislodged from stowage during impact.

Crewmembers may find themselves having to shout instructions to passengers regarding the use of the flotation devices.

Research carried out by Civil Aero Medical Institute (CAMI) in the United States has confirmed that people have difficulty in donning life vests. Adjustable waist straps appear to pose the biggest problems. Either they are not tightened, or the passengers cannot fasten them correctly, or do not fasten them at all, or the straps become twisted and caught in the strap length adjuster. The numerous straps, and the various attachment mechanisms confused many of the research participants. The research was conducted in a test environment. It is important to remember that the level of stress will be greater in reality, and is an important element.



The cabin crew should know how to give instructions for the use of equipment carried onboard the aircraft. Expect to shout instructions in order to help passengers don their life vests correctly.

- **"Life vests under your seats"**
- **"Tear open the pouch"**
- **"Place over your heads"**
- **"Fasten straps tight around waist"**
- **"Inflate when leaving the aircraft".**

The cabin crew should think about the commands that may be used in order to assist passengers in donning their life vests correctly. The voice of the crewmember giving instructions is a very effective tool, and can make a difference.

Life vests should be inflated as the passengers are exiting the aircraft. Life vests should not be inflated in the cabin to avoid damage.

When all passengers have boarded the slide/slideraft, the crewmember will be the last person to board. If the slide/slideraft is still attached to the floor;

- Lift the Flap
- Pull "Disconnect Handle".

The slide/slideraft will still be attached to the aircraft by the mooring line. To separate the slide/slideraft from the aircraft:

- Cut the mooring line.

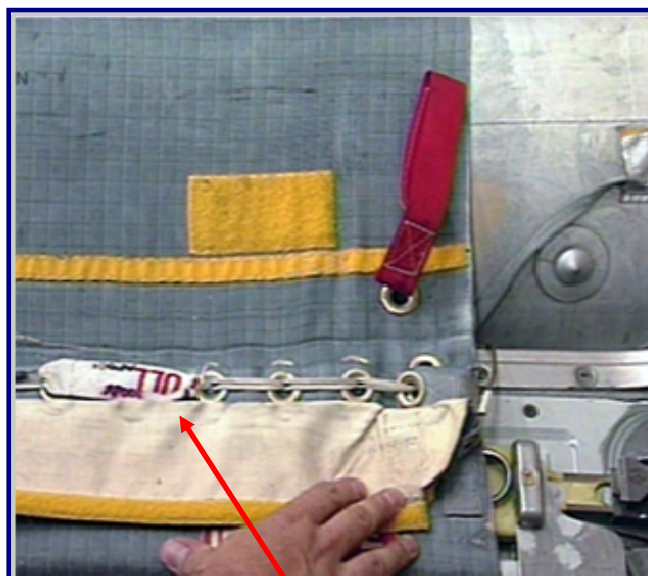
**Figure 6-1**

***Slide Raft Disconnection***

**Step 1. Lift Flap**



**Step 2. Pull the Disconnect Handle**



**Disconnect Handle**

### 6.11. SURVIVAL PHASE

If the aircraft is near an airport, assistance and rescue will not be far away. However, crewmembers must remain in control of the situation, and keep passengers together.

If passengers are in the water waiting for rescue, the cabin crew should instruct them to stay "huddled" in groups, by forming a circle and facing towards the center. The crew should encourage passengers to help each other, until assistance arrives. For example, an injured person may be placed in the center of the circle, this will help them to stay afloat and maintain body heat.

Staying together in groups has a dual purpose. Firstly, it is easier to locate survivors if they are all together or in groups. Secondly, staying "Huddled" together in a circle provides body heat, and slows down the effects of hypothermia.

If slide/sliderafts have been used, get as many people as possible out of the water.

The most important factor in surviving an "unplanned ditching" is the quick response from the crew to take immediate action, knowledge of ditching procedures, and above all, the ability to remain in control of the situation.

The most appropriate way to prepare cabin crew for the unexpected is to provide training, that encourages cabin crew to "think on their feet", and to use and adapt their skills to the situation.

## 6.12. PLANNED DITCHING

Planned ditching in commercial aviation is a rare occurrence, however, in other sectors of aviation ditching does occur and is survivable.

In commercial aviation, probably the most successful ditching of a commercial transport aircraft was in Sitka Sound, near Biorka Island, Alaska, in October 1962. Due to an engine failure, during cruise at 20 000 feet, the engine seized and began to lose parts. The Captain decided to ditch the aircraft.

There are many factors that contributed to the successful outcome of the Sitka Sound ditching.

The communication between the flight crew, and the cabin crewmembers, was an open two-way communication. This enabled the cabin crewmembers to carry out detailed cabin preparations. The cabin crewmembers had approximately 45 minutes to prepare the cabin.

The crewmembers rehearsed the “Brace” position with the passengers, gave instructions for donning life vests, and distributed life vests for children.

The cabin crew explained to the passengers seated at exits, how to open the exits, and launch the life rafts. The rafts were moved to the corresponding exits, and the static lines secured. These passengers were advised by the crewmembers not to take any action, until advised.

When the cabin was prepared, the cabin crew informed the flight crew that the cabin was ready.

The cabin crewmember used the public address system to tell passengers to take the “Brace” position, and remain in that position until the aircraft came to a complete stop.

When the aircraft stopped, the cabin crew immediately began to deploy the life rafts, and assist the passengers to board. The water level in the cabin rose to approximately 2 feet (75cm), however the aircraft took 24 minutes to sink.

Within 5 minutes of ditching, all the passengers and crew were in the rafts. Only one raft did not have a crewmember onboard. Within 20 minutes all passengers and crew had been transferred to a launch, and boarded the coast guard vessel.

This was a civilian aircraft operating as a military passenger charter. All the occupants survived, and none of the passengers or crew was seriously injured.

The report of the “Civil Aeronautics Board” (now called the NTSB) described this ditching as *“an outstanding feat”*. The successful outcome was attributed to the following factors:

- Ideal conditions of wind and sea
- Crew familiarity with ditching procedures
- Sufficient time to prepare the cabin
- The military passengers’ receptiveness and responsiveness to orders.

This example highlights the fact that ditching can happen, but it can also be survived.

### 6.13. CABIN PREPARATION – DITCHING DIFFERENCES

Preparing the cabin for a ditching is similar to preparing the cabin for a land evacuation, however, there are a few differences.

#### 1. Alert Phase

Unlike a planned ground evacuation, there will be no instruction to “remain seated” in the flight crew to purser briefing. In this case it will be necessary for everyone to evacuate the aircraft.

- **N**ature of the emergency
- **T**ime available (check watch)
- **S**pecial Instructions
- **B**race signal.

#### 2. Passenger Briefing

The passenger briefing will take the same form as the “planned ground evacuation” briefing, however, the passengers will need more information due to the nature of the emergency, and the equipment required to survive.

- Donning and the use of the life vest
- ABP Assistance briefing will be more detailed

The amount of time available will determine the level of preparation. The most important survival information should take priority, and other tasks should be accomplished as time permits:

- Life vests
- Brace position
- Exits
- ABP Briefings
- Safety Checks
- Final Cabin preparation.

Cabin crewmembers must have their own life vest before commencing the briefing.

The cabin crewmembers should be in their designated brief and secure area, equipped and ready to commence the passenger briefing.

Cabin crewmembers should listen carefully to the announcement, and coordinate the demonstration with the instructions.

**When reading the safety briefing announcement, it will be important to pause at key points, in order to give the cabin crewmembers time to don their lifevests, demonstrate, and, check passenger compliance.**

#### 6.14. LIFEVESTS

Crewmembers should simultaneously don their life vest and demonstrate to the passengers, as follows:

- Remove the crew life vest from the pouch
- Unfold the life vest and hold it up in front [crewmember]
- Don the life vest
- Secure straps
- Identify light (if applicable)
- Identify Whistle (if applicable).

Crewmembers should then check the passenger life vests in his/her assigned area.

Assist passengers in putting on, and securing their children's life vests. Assist other passengers that may need help. If an adult life vest is to be used for a child, adapt it accordingly. If available, distribute and explain to passengers how to use other flotation equipment, such as baby survival rafts.

### **6.15. EXITS**

Indicate the exits that have slide rafts to passengers. The location of slide/slide rafts may vary according to the aircraft type.

Overwing exits do not have slide rafts. The cabin crew should indicate the nearest slide/life rafts to passengers that are seated at overwing exits.

### **6.16. ABLE BODIED PASSENGER BRIEFINGS**

The criteria used for selecting Able Bodies Passengers (ABPs) for a ground evacuation applies to ditching. Ideally, select three APBs per exit, and seat them at the exit.

One ABP should be briefed to replace the cabin crewmember in case the crewmember becomes incapacitated. The crewmember should brief the passengers on.

- How to assess conditions outside the aircraft, and identify if the exit is usable/unusable (determined by water level)
- How to open the exit
- How to locate the manual inflation handle
- How to protect him/herself from going overboard, and remain in the assist space.
- The commands to be used during evacuation
- How to board the slide/raft
- How to disconnect the slide/raft
- How to cut the mooring line to release the raft from the aircraft.

### ABPs Two and Three. Slide raft assistance.

ABPs two and three should be instructed to board the raft to assist passengers. One ABP should be instructed to go to the end of the raft. The other ABP should be instructed to stay in the middle of the raft to assist passengers to the far end.

On some aircraft types, where the rated capacity of the slide/ rafts is lower than the number of people onboard (such as the A320/A321), a round raft is located in the cabin. ABPs two and three are responsible for the round raft. These ABPs will be briefed how to:

- Take the raft to the exit
- Use the mooring line to attach the raft to a fixed part of the aircraft, for example, a passenger seat
- Launch the raft (the raft must be thrown outside the aircraft)
- Manually-inflate the raft, in case it does not inflate. "Pull the mooring line"
- Board the raft and distribute passengers evenly.

When the ABP briefing has been completed, the cabin crew should perform final safety check to ensure that all loose or sharp objects have been removed, and that the cabin is secure.

For the A320, during the final cabin preparation, the survival kit should be attached to the slide raft by attaching the lanyard, that is located forward of the door, to the hook on the survival kit.

When the cabin is secure, the Purser should inform the flight crew that the cabin is ready. The Purser should ask the flight crew for updated information, and communicate any new information with the rest of the cabin crew. The flight crew may be able to inform the Purser about:

- The nearest landfall
- Shipping in the area.

When the cabin preparation is complete, the cabin crewmembers should then prepare themselves. Ensure that the doors are in the armed position, and concentrate on the "Silent Review", including the removal of emergency equipment or the three "W's".

- Who collects
- What to collect
- Where to collect.



The flight crew will give the “Brace” command at the appropriate time.

Cabin crewmembers should repeat the brace command until the aircraft has come to a complete stop.

### 6.17. POST DITCHING

When the aircraft has come to a complete stop, cabin crewmembers will release their seat belts, and begin to shout their commands. If the noise level is high, use a megaphone, or the PA, if operative.

The ability to evacuate passengers from the aircraft to the rafts will depend on the state of the sea, and the condition of the aircraft. When an aircraft is intact it should be able to float on calm seas for several minutes.

Being aware of the situation in the cabin, and the condition of the aircraft, will determine how passengers will leave the aircraft and where.

In the worst possible case, if the aircraft is sinking, passengers and crew should leave the aircraft through any possible opening. Instruct passengers to inflate their life vests, and hold on to anything that is floating.

Structures, such as engine pylons, flaps may detach from the aircraft and possibly damage the rafts, as the aircraft starts to sink. Therefore, stressing the urgency to evacuate the aircraft, and get away from immediate danger.

#### **Assess outside conditions.**

The level of water at the exit will determine if the exit is usable, or not. Exits that are below water, partially submerged, or seeping water around the edges, must be considered unusable. Priority should be given to exits that are above the water level.

When the exits have been opened, crewmembers will be able to determine how to evacuate passengers to the rafts. **If the water is at doorsill level**, the passengers may board the slide/slideraft directly from the aircraft. The slide/slideraft should be left attached to the floor of the aircraft.

Passengers must inflate their life vests, when exiting the aircraft.

Distribute passengers evenly on slide /sliderafts, to prevent capsizing.

**If the water level is too far away from the doorsill**, detach the raft from the doorsill using the “disconnect handle”. The raft will still be attached to the aircraft

by the mooring line. Crewmembers should pull the mooring line in, to keep the slide/slideraft close to the door to evacuate passengers.

Cabin crewmembers will need to continue shouting commands, to speed up the evacuation.

When boarding passengers into the rafts, ensure that the passenger count does not exceed the raft capacity.

Monitor the flow at each exit, and be prepared to re-direct passengers to other rafts, in case there is congestion, or if the cabin conditions change (For example, unusable exits, rising water, aircraft sinking).

Before the cabin crewmembers leave the aircraft, check the cabin to ensure that all passengers and crew have evacuated. Remove assigned emergency equipment from the aircraft.

- Inflate life vest and evacuate the aircraft into the assigned slide/slideraft
- If, the slide/slideraft is still connected to the aircraft pull the "disconnect handle. The slide/slideraft is still connected to the aircraft by the mooring line.
- Using the knife, cut the mooring line to separate the slide/slideraft from the aircraft
- Retrieve the survival kit attached to the lanyard.

#### **Once separated from the aircraft:**

- Get clear and upwind of the aircraft, but stay in the vicinity of the aircraft
- Stay clear of fuel contaminated water, in case the fuel ignites
- Stay clear of any debris, which may damage the rafts
- Locate other survivors.

If possible, there should be at least one crewmember per slide/slideraft. The crewmember should take the leadership role. The survival of the passengers depends on the crewmembers knowledge, and ability to use the available survival equipment, and the ability to cope with the hazards and hardship.

As soon as the raft is clear of the wreckage, the cabin crew should deploy the sea anchor. The sea anchor must be deployed in order to prevent the raft from drifting with the current. It is possible to drift over 160 Kilometers in one day, therefore making it difficult to locate survivors.

When survivors have been found in the water, immediate action should be taken to get them onboard the slideraft. Throw the heaving ring located on the raft, to the survivor and pull them towards the raft.

When bringing survivors into the raft, it is important to ensure that the weight is evenly distributed to avoid the raft from capsizing. Boarding handles, or boarding steps, are usually located on the slideraft to assist survivors. Passengers should be boarded from the toe end of the slide/raft.

Some survivors may be injured, or too weak to board the raft, and may require assistance. This can be quite difficult, however, there are techniques that may make it easier. Below is an example of one such technique.

- Two people should hold the person under the armpits (not the arms)
- Push the person down into the water, and then pull as the buoyancy from the life vest pushes the person up again.

However, keep the person informed every step of the rescue, so that he/she can cooperate!

Once onboard the raft, all persons should keep their life vests until rescued.

Remember that keeping the raft close to the ditching site will make location easier.

## **6.18. SURVIVAL**

The four basic principles to survival are:

- Protection
- Location
- Water
- Food.

### **6.18.1. PROTECTION**

Erect the canopy to prevent wind-chill hypothermia from affecting wet bodies. When the canopy is erected, all occupants will be protected from the elements.

Check the physical condition of all passengers and other crewmembers onboard, and administer first aid as necessary.

Seasickness can be expected. The smell inside the life raft, and loss of visual reference increases the risk of seasickness. Vomiting causes a serious loss of fluid.

If available, seasickness pills should be distributed. However, if they are not available, occupants should be instructed to look at the horizon to have a visual reference.

Using the bailing bucket and the sponges from the survival kit, remove water from the raft. The floor of the raft should be kept as dry as possible.

Try to keep the raft clean and dry to prevent illness and infection.

The condition of the raft should be frequently monitored. If necessary, inflate the buoyancy chambers using the hand pump that is in the survival kit. The buoyancy chambers should be firm, but not too hard. Inflation should be checked regularly.

### 6.18.2. LOCATION

The second element of survival is "Location". Any radio beacons should be activated, to send out a signal to identify your location.

Other signaling equipment in the survival kit includes:

- Signaling mirror
- Day/night flares
- Dye marker.

If there is more than one slideraft, they should be tied together. A distance of approximately 8 meters (25 feet) should be respected, to allow for wave action. Keeping the rafts together makes location and rescue easier.

If transceivers are available, they should be used to check the beacon signal, on 121.5 MHZ. The "beeping" noise will confirm that the beacon is correctly deployed.

Transceivers may also be used to communicate with other rafts.

Rescue at sea requires a cooperative effort. Therefore, raft occupants should actively participate in the rescue effort, and assist with raft maintenance. Not only will this help to use time constructively, but also to mentally occupy passengers and crewmembers, and to keep the morale up, during a very difficult situation. The crewmembers should assign tasks to occupants, for example:

- Looking out, to spot passing aircraft or ships
- Using signaling mirror, as mirror flashes can be seen for many kilometers, even in hazy weather
- Keeping the floor of the raft dry

- Recovering moisture, or rainwater to drink.

These duties should be rotated every few hours. It will give people a sense of responsibility. Passengers should be reminded that cooperation is necessary to survive.

Conditions in the raft will be far from ideal. Even during a short space of time, occupants may feel cramped, tired and anxious.

Mental attitude is a very important aspect of survival. In emergency situation, try to keep the morale up to prevent people from falling in to hopelessness and despair. Do not give up hope, because the will to live is a key element of survival.

### **6.18.3. WATER**

Crewmembers will need to assess how much food and water is available, and ration them accordingly.

Water is the most important element. It is possible to live on just water for 10 days, or more. When the water supply is limited and cannot be replaced, it should be used efficiently.

Freshwater supplies should be protected from being contaminated from seawater.

At night, if water is in short supply, the canopy can be rolled up at the side to collect dew, by using a sponge or cloth.

The amount of water available, and the amount of people and their physical condition, should be considered when rationing water.

### **6.18.4. FOOD**

The general rule is, "if you don't have water, don't eat". Only eat if water is available, as it is necessary to aid digestion.

## **6.19. RESCUE**

When an aircraft or a ship has been sighted, all the signaling equipment available should be used to attract attention. Occupants must stop signaling as the craft approaches.

The raft will need to be prepared. Take the canopy down; secure all loose items in the raft. The crewmember should instruct the passengers to ensure their life vests are fully inflated, by blowing into the tubes, to restore the buoyancy chambers.

Never take a life vest off during rescue.

Passengers and crewmembers will have to be patient during the rescue operation, and understand that the procedure takes time, depending on the type of rescue craft. It may not be possible to rescue all raft occupants at once.

The crewmember may have to decide who should be rescued first, such as injured passengers and crewmembers, or women with children. The crewmember will need to manage the passengers calmly, and maintain order until the last person has been rescued.

The crewmembers and passengers must follow the instructions of the rescue personnel, and remain in the raft until instructed.

Helicopter rescue requires particular attention, and it is imperative that the instructions given by the rescue crew are obeyed.

- Do not attempt to stand up - all raft occupants should remain seated with arms and legs inside the raft
- Rotor wash from the helicopter may be quite severe. Keep people low in the raft, and ensure that the weight is evenly distributed.
- Do not do anything using your own initiative
- Do not reach out to grab the cable (to avoid the possibility of an electric shock), wait until it reaches the raft or makes contact with the water
- Wait for instruction from the winch man
- On reaching the door sill of the helicopter, don't try to help yourself in, let the helicopter crew bring you onboard
- A rescue swimmer may not always drop from the helicopter to aid with rescue. The cabin crewmember may have to help with instruction
- The crewmember must stay in the raft until all passengers have been rescued.

With modern satellite technology, location and rescue may not be far away.

However, it is always best to prepare for the most extreme circumstances.

Crewmembers should feel confident that their knowledge of ditching procedures, and survival techniques would get them through the worst possible circumstances.

During this chapter, examples of “unplanned” and “planned” ditching were used to highlight the positive effects that crewmembers can have during emergencies.

Crewmembers are always the leaders in any emergency situation. An effective leader has knowledge and skills, plus the ability to apply those skills as necessary.

**6.19.1. EVACUATION ON WATER PROCEDURE- SLIDERAFT****- STAND UP AND SHOUT . . . . "UNFASTEN SEATBELTS, LIFEVESTS ON"**

Inflate the lifevest, only once outside the aircraft.

**- ORDER . . . . . "REMOVE SHOES"**

- • If the is usable.
- **DOOR IN ARMED POSITION . . . . . OPEN**
- **RED, MANUAL INFLATION HANDLE . . . . . PULL**

Do not wait for automatic inflation of the slideraft.

**• If the water level is close to the door sill:**

The slideraft inflates on the water.

- **SLIDERAFT . . . . . LEAVE ATTACHED TO CABIN FLOOR**
- **ASSIST SPACE . . . . . OCCUPY**

**• If the water level is too far away from the door sill:****- SLIDERAFT . . . . . DISCONNECT FROM DOOR SILL**

The slideraft remains tied to the aircraft by a 6-meters (20 feet) mooring line.

**-MOORING LINE . . . . . HOLD**

To keep the slideraft close to the exit, hold the mooring line.

**-PASSENGERS EVACUATION . . . . . EXPEDITE****-“COME THIS WAY”, “HURRY” . . . . . SHOUT****-PASSENGER LIFEVESTS... INSTRUCT PASSENGERS TO INFLATE LIFE VESTS WHEN EVACUATING THE AIRCRAFT****-NUMBER OF PASSENGERS BOARDING THE SLIDERAFT . . . MONITOR****-ASSIGNED AREA . . . . . CHECK FULLY EVACUATED****-LAST CREWMEMBER . . . . . BOARD SLIDERAFT****-MOORING LINE . . . . . CUT****-SURVIVAL KIT . . . . . RETRIEVE**

The survival kit is attached to the slideraft via a lanyard.



### 6.19.2. EVACUATION ON WATER PROCEDURE – ESCAPE SLIDE

The escape slide is used as a passenger flotation device only. It is not equipped with a canopy or a survival kit.

**-STAND UP AND SHOUT ..... "UNFASTEN SEATBELTS, LIFEVESTS ON"**

Inflate the lifevest, only once outside the aircraft.

**-ORDER ..... "REMOVE SHOES"**

• **If the exit is exit usable:**

- **DOOR IN ARMED POSITION ..... OPEN**
- **RED, MANUAL INFLATION HANDLE ..... PULL**

Do not wait for automatic inflation of the slide.

• **If the water level is close to the doorsill:**

The slide inflates on the water.

- **SLIDE ..... LEAVE ATTACHED TO CABIN FLOOR**
- **ASSIST SPACE ..... OCCUPY**

• **If the water level is too far away from the doorsill.**

- **SLIDE ..... DISCONNECT FROM DOOR SILL**

The slide remains tied to the aircraft by a 6-meters (20 feet) mooring line.

- **MOORING LINE ..... HOLD**

To keep the slide close to the exit, hold the mooring line.

**-PASSENGERS EVACUATION ..... EXPEDITE**

**-"COME THIS WAY", "HURRY" ..... SHOUT**

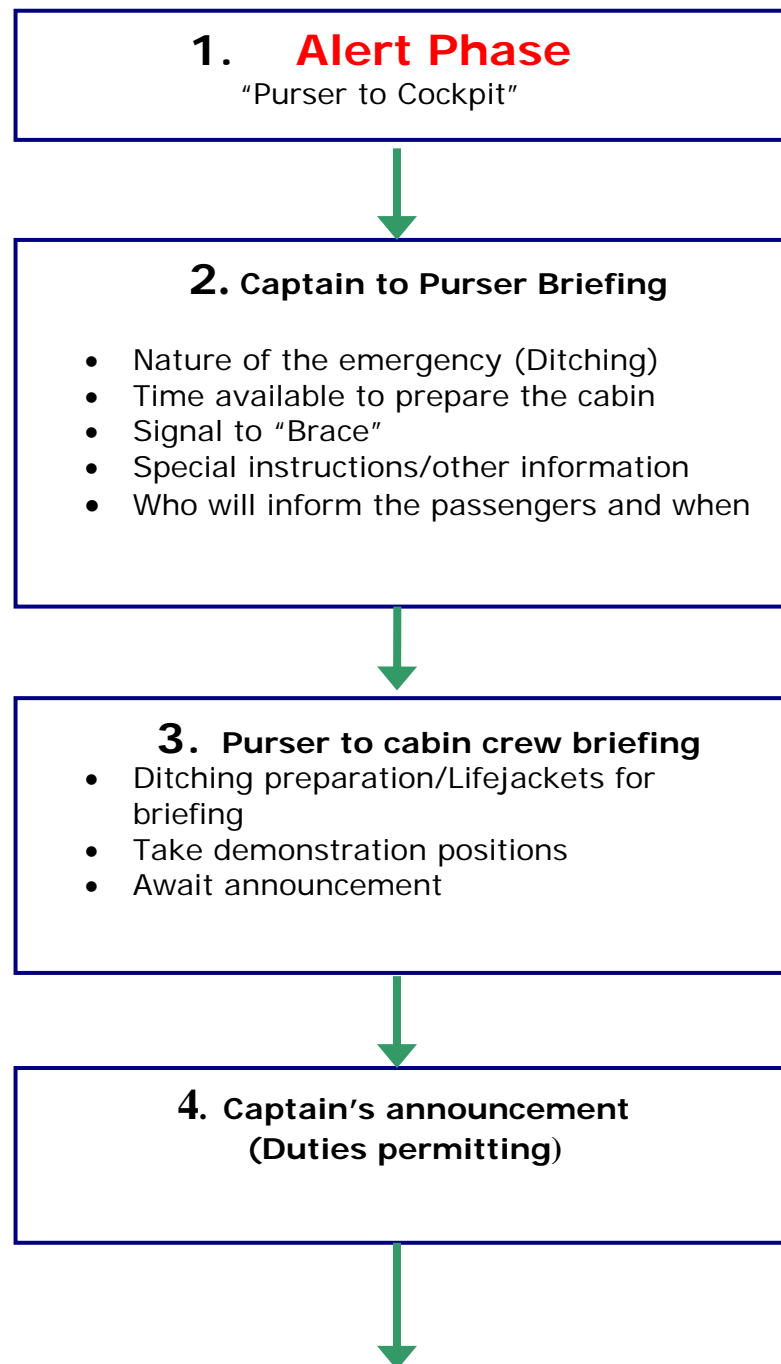
**-PASSENGER LIFEVESTS... INSTRUCT PASSENGERS TO INFLATE LIFE VESTS WHEN EVACUATING THE AIRCRAFT**

**-NUMBER OF PASSENGERS BOARDING THE SLIDE ..... MONITOR**

**-ASSIGNED AREA ..... CHECK FULLY EVACUATED**

**-LAST CREWMEMBER ..... BOARD SLIDERAFT**

**-MOORING LINE ..... CUT**

**6.19.3. PLANNED DITCHING CABIN PREPARATION**

### **5. Purser's Announcement**

- If the captain's announcement is not possible
- The Nature of the emergency
- Necessity to prepare the cabin
- Follow the instructions of the crew

The emergency demonstration announcement should include.

- Lifejackets (Stress only to be inflated when exiting the aircraft)
- Brace positions
- Location of exits. Slide/life rafts
- Loose items
- Passenger assistance (ABP's)
- Assistance with lifejackets, children and infants
- Safety Card Review (Including Seat belts, tray tables, seat backs, armrests)



### **6. Final cabin secure check**

- Seat belts fastened
- Seatbacks upright
- Tray tables stowed and latched
- Carry on baggage stowed and secure
- Overhead bins closed and latched
- Aisles clear of all obstructions
- Service items cleared
- Cabin dividers open



### **7. Secure Galleys**

- Close and secure all containers
- Carts stowed and secured
- Switch off all galley power
- Pull all circuit breakers



